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Mr. T. distributed specimens to many of the American Conchologists, most of whom informed him that it was new to their collections. The donation this evening (Nov. 4) indicates that the species has a large area of distribution, and has probably been overlooked by collectors under the supposition that it was merely the young of some larger species.

At the meeting held December 2d, Mr. W. L. Mactier called attention to a specimen of *Dolium melanostoma* Jay, presented by him this evening. The locality of this shell still remains a mystery, although it has been recently assigned to Japan. Mr. M. also presented a nearly perfect specimen of *Voluta Junonia* and remarked that it was the rarest of American *Volutidæ*, and was found in the Gulf of Mexico.

Mr. Tryon referring to his remarks made at a former meeting in refutation of Dr. Gray's opinion that *Crepidula plana* Say, is identical with *C. fornicata* Linn., stated that additional evidence of their non-identity had recently been presented by Mr. George H. Perkins, who in a recent paper states "that the ovi-capsules of *plana* are broader, shorter, and thinner than those of *fornicata*, and the ova are differently situated."

GEOLOGY.

Further Evidence of the Affinity between the Dinosaurian Reptiles and Birds. — Professor Huxley reviewed the evidence already cited by himself and others (especially Prof. E. D. Cope), in favor of the ornithic affinities presented by the Dinosauria; and discusses at length the recently ascertained facts which bear upon this question, some of the most important of which are derived from the species described by him in the preceding paper under the name of *Hypsilophodon Foxii*. He summed up his paper by a comparison of the different elements of the pelvic arch and hinder limb in the ordinary reptiles, the Dinosauria and Birds, and maintained that the structure of the pelvic bones (especially the form and arrangement of the ischium and pubis), the relation between the distal ends of the tibia and the astragalus (which is perfectly ornithic), and the strong cnemial crest of the tibia and the direction of its twist, furnishes additional and important evidence of the affinities between the Dinosauria and Birds.

Sir Roderick Murchison, who had taken the chair, enquired as to the habits of the Hypsilophodon. Mr. Hulke mentioned that Mr. Fox had several blocks containing remains of a large portion of the Hypsilophodon, all procured from a thin band of sandstone near Cowleaze Chine. On one the pelvis is almost entire, as well as the right femur, the tibia, which is longer than the femur, four long metatarsal bones, and an astragalus. All the long bones are hollow. Portions of at least eight individuals have been found in the same bed. Mr. Seeley doubted whether these animals should be called reptiles at all, as they seemed to him to form a group distinct alike from reptiles, birds, and mammals, but occupying an intermediate position. In the hinder limbs of Pterodactylus the analogies were closer with mammals than with birds. He thought it possible that the peculiar structure of the hinder limbs of the Dinosauria was due to the functions they performed rather than to any actual affinity with birds. The President, in reply, stated that Hypsilophodon, from the character of its teeth, probably subsisted on hard vegetable food. He expressed a hope that Mr. Fox would allow a closer examination of his specimens to be made. He was unable to agree with Mr. Seeley's views. He was inclined to think that the progress of knowledge tended rather to break down the lines of demarcation between groups supposed to be distinct than to authorize the creation of fresh divisions. — *Nature, London.*

FOSSIL HORSE IN MISSOURI. — In the Transactions of the St. Louis Academy of Science (Vol. ii, p. 418), Professor Swallow announced the discovery of horse remains in the altered drift of Kansas.

I have now the honor to announce that similar remains have recently been discovered in a well at Papinville, Bates County, Missouri. Mr. O. P. Ohlinger procured a tooth at the depth of thirty-one feet from the surface, resting in a bed of sand beneath a four inch stratum of bluish clay and gravel. Above the last was thirty feet ten inches of yellowish clay reaching to the surface. Beneath the sand, containing the tooth, was a gravel bed five feet in thickness, consisting mostly of rounded pebbles resembling river gravel, generally hornstone, many partially, and some firmly adhering together. Other pebbles shown me from the same bed were of iron ore, coal and micaceous sandstone. I was farther informed that some remains of fluviatile shells were found. I sent the tooth to Professor Joseph Leidy of Philadelphia, and he pronounced it to be the last upper molar of a horse, probably an extinct species.

From a similar gravel bed on the banks of Marais des Cygne, a fragment of a tusk was given me resembling very much that of a mammoth. Its whole length was said to be seven feet four inches. About ten miles above Papinville, the banks of Marais des Cygne River appear to be of a similar formation to the well of Ohlinger, consisting of about twelve feet of brown sandy clay resting on ten feet of blue clay with many pebbles of worn gravel at the lower part.

These gravel beds I consider as of more recent age than the drift, but older than the bluff or loess, and regard them as altered drift. They seem rather to abound on the Osage and its tributaries, and are often reached in digging wells.

The tooth from Maysville, Kansas, was found in altered drift at a depth of forty-five feet from the surfaces.

Dr. Albert Koch exhumed the famous *Missourium* (*Mastodon giganteus*), from a bed of gravel and clay on Pomme de Terre River, twenty feet below the surface. In these beds of altered drift we may therefore expect to find many interesting remains of mammals. — G. C. BROADHEAD (*Read before the St. Louis Academy of Science, Nov.* 15, 1869).

SUDDEN DRYING UP OF STREAMS IN NEVADA. — In my article on the "Truckee and Humboldt Valleys," I casually call attention to the intermittent character of the mountain streams in that region. I state that they "run freely, even boisterously, during the night and early morning, but dry up totally in the lower part of their course by noon." My offered explanation was rather a surmise than a conclusion. I had at that time seen no other. I have just observed, however, a statement of the fact and a theory to account for it. I refer to an article by Mr. Robert Brown in the January number of the "Country Gentleman," upon "The Forest Trees and Forest Life of North-west America." He says "these streams are hid in high mountains, and the sun is not of sufficient power to melt the snow which forms their volume until late in the day, when they gather force, and again decrease after sunset until they are almost dry."

This solution of the mystery is very plausible and doubtless correct as regards the streams which came under Mr. Brown's observation. It will not apply so well, however, to those of the West Humboldt Mountains, of which I wrote. At the time my attention was drawn to the subject there was no snow upon the range, even the high summit of Star Peak being perfectly bare. Had there been snow, I think the heat of the sun in August was sufficient to melt it any time in the day. I confess that my own offered explanation does not account for the great volume of water in the streams. Although the subject has no direct connection with natural history, I have ventured to call your attention to it in order, if possible, to draw out a theory which will meet the facts. — W. W. BAILEY.

QUATERNARY DEPOSITS. — During the summer of 1865, whilst digging a pit for the foundation of a bridge abutment on the Pacific Railroad, four miles north of Pleasant Hill, Missouri, after passing through soil and dark clays at the depth of twelve feet, a bed of gravel and decomposing remains of fresh-water shells was reached, from which I obtained the tooth of an extinct species of ox.

In the year 1868, whilst prosecuting some geological examinations in Moultrie County, Illinois, I found in the bank of Kaskaskia River, the skull, with part of the vertebral column of an ox (probably *Bos latifrons*). The distance across the skull between the roots of the horns measured twelve inches, and the same between the eyes. The horns were short, thick, and but slightly curved forward and upward. On the bank above there were trees growing two feet in diameter. The bones were surrounded by dark clays and debris.

Besides remains of mammalia, bones and sticks of wood have often been found in modified drift at twenty feet or more beneath the surface. In North Missouri, sticks of wood have been found at a depth of seventy-five feet, part of a grape-vine at forty feet, and in Illinois a piece of cedar has been obtained from more than a hundred feet beneath the surface. In Nevada, Missouri, a walnut log two feet thick was dug up from a depth of sixteen feet; and four miles north, charred wood and a bivalve shell from a depth of nineteen feet.

It may not be improper here to state that boulders and many rounded pebbles of granite, sienite, greenstone, etc., with accumulations of drift sands, abound along the north line of Missouri, and are even abundant near the line of the Hannibal and St. Joseph Railroad; further south they are more rare, being scarce near the Missouri River. In Sullivan County, Missouri, I have observed a granite boulder twenty-five feet in diameter; in Monroe County, a greenstone boulder, three feet in diameter. Near the Missouri River one is rarely found more than a foot in diameter. In Osage County, Missouri, I have only found one small granite boulder, and found none in the upper river counties on the south. The Missouri River sandbars abound* in small, rounded pebbles of mostly granite, sienite, hornstone, greenstone, lignite and quartz rock, with pebbles from neighboring rocks; all the first named pebbles are borne down from far up in the mountains.

The absence of granitoid rocks in the accumulations along the Osage and its tributaries may be sufficient evidence to place the era of these deposits in a more recent period than that of the modified drift of North Missouri. They may belong to the older loess or bluff, and we may conclude the horse, ox, mammoth and mastodon to be coexistent. It is even probable that they may have roamed America during the epoch of the mound builders. — G. C. BROADHEAD, *St. Louis, Mo.*

NEW MOSASAUROID REPTILES. — Professor Marsh has recently published in the "American Journal of Science," a notice of four new reptiles, belonging, or allied, to Mosasaurus, from the Greensand of New Jersey. He remarks that " a striking difference between the reptilian fauna of the Cretaceous of Europe and America is the prevalence, in the former, of remains of Ichthyosaurus and Plesiosaurus, which here appear to be entirely wanting; while the Mosasauroids, a group comparatively rare in the Old World, replace them in this country, and are abundantly represented by several genera and numerous species.

SCOLITHUS A SPONGE. — Mr. E. Billings has referred the supposed casts of worm burrows, named Scolithus and Arenicolites, and found in Silurian rocks, to the sponges. He believes that these ancient sponges, at least many of them, lived in the sand or soft ooze of the ocean's bottom, with their sometimes wide and trumpet-shaped mouths, just even with or a little elevated above the surface. — SCIENTIFIC OPINION.

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ANTHROPOLOGY.

RELICS FROM THE GREAT MOUND. — I send in this letter a perforated shell disk and an oblong bead. They were found with many others in

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* Granite and other igneous pebbles are found further to the south than Illinois.